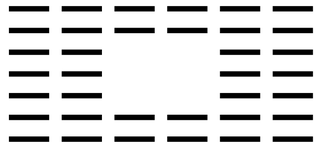

ICON
Air Force // Tyndall AFB

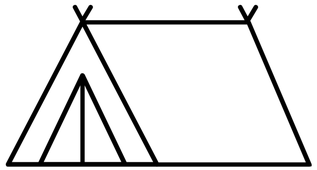
CONTEXT

Military **construction** has had little innovation in the last 100 years.



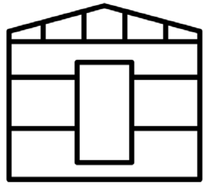
1900s

Bunkers



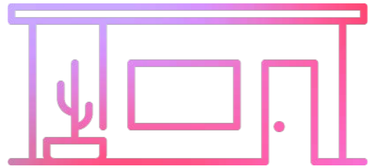
1940s

Tents



1970s

Plywood



The Future

3D Printing

There are a number of key use cases across the military.

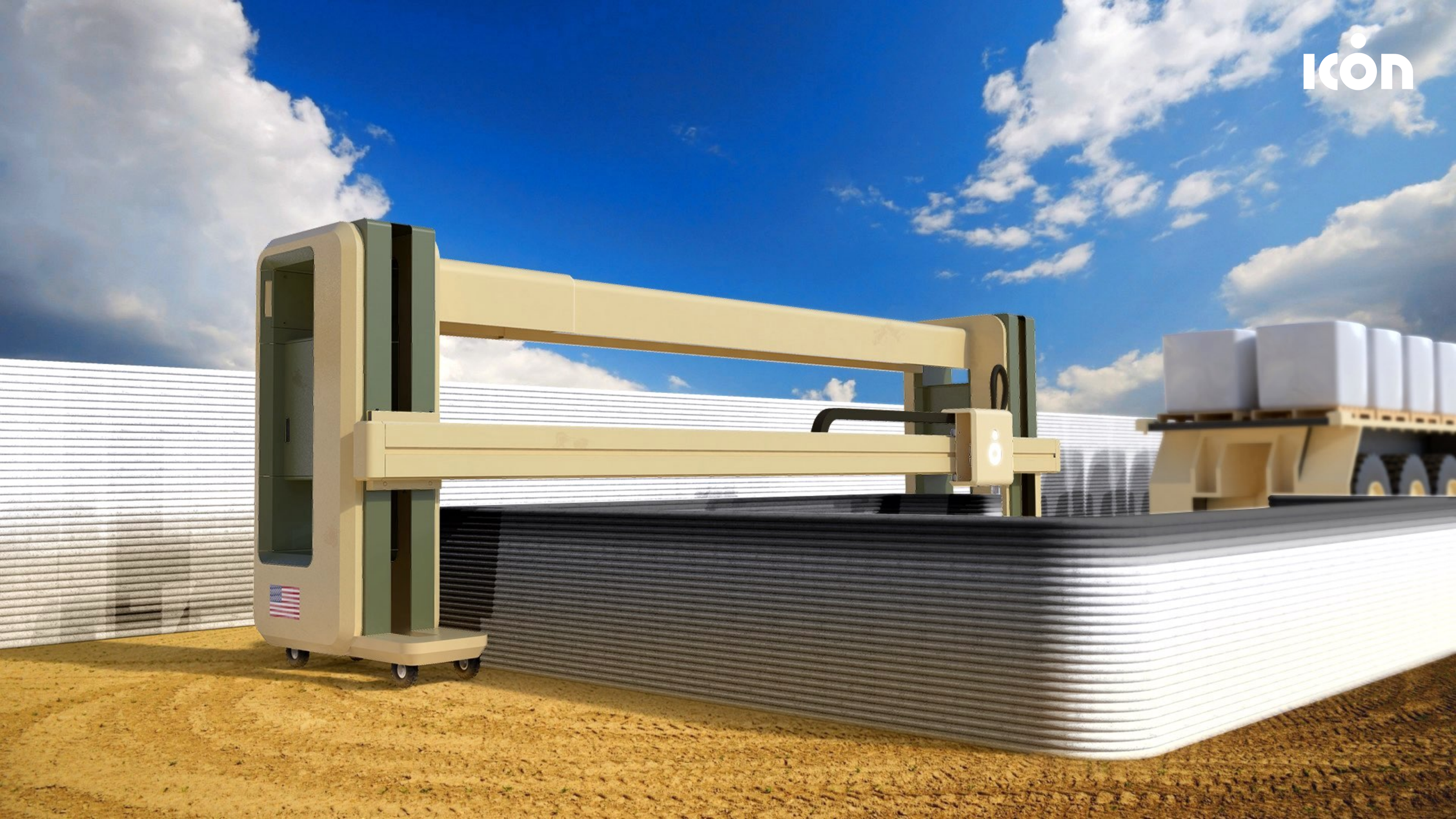
Combat

Disaster

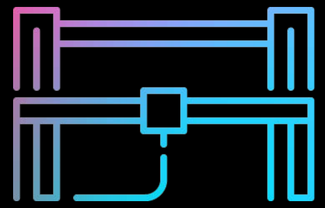
Training

Humanitarian

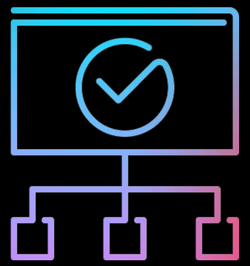
FORWARD OPERATING BASE


ICON

Construction scale 3D printing



Robotics

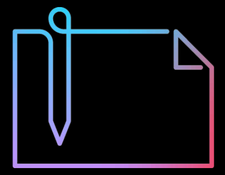


Software

Materials

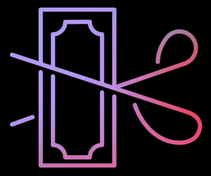
The promise of 3D printing.

SPEED

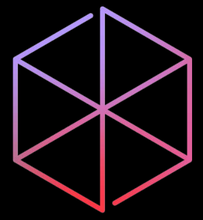


CUSTOMIZABLE

SURVIVABILITY



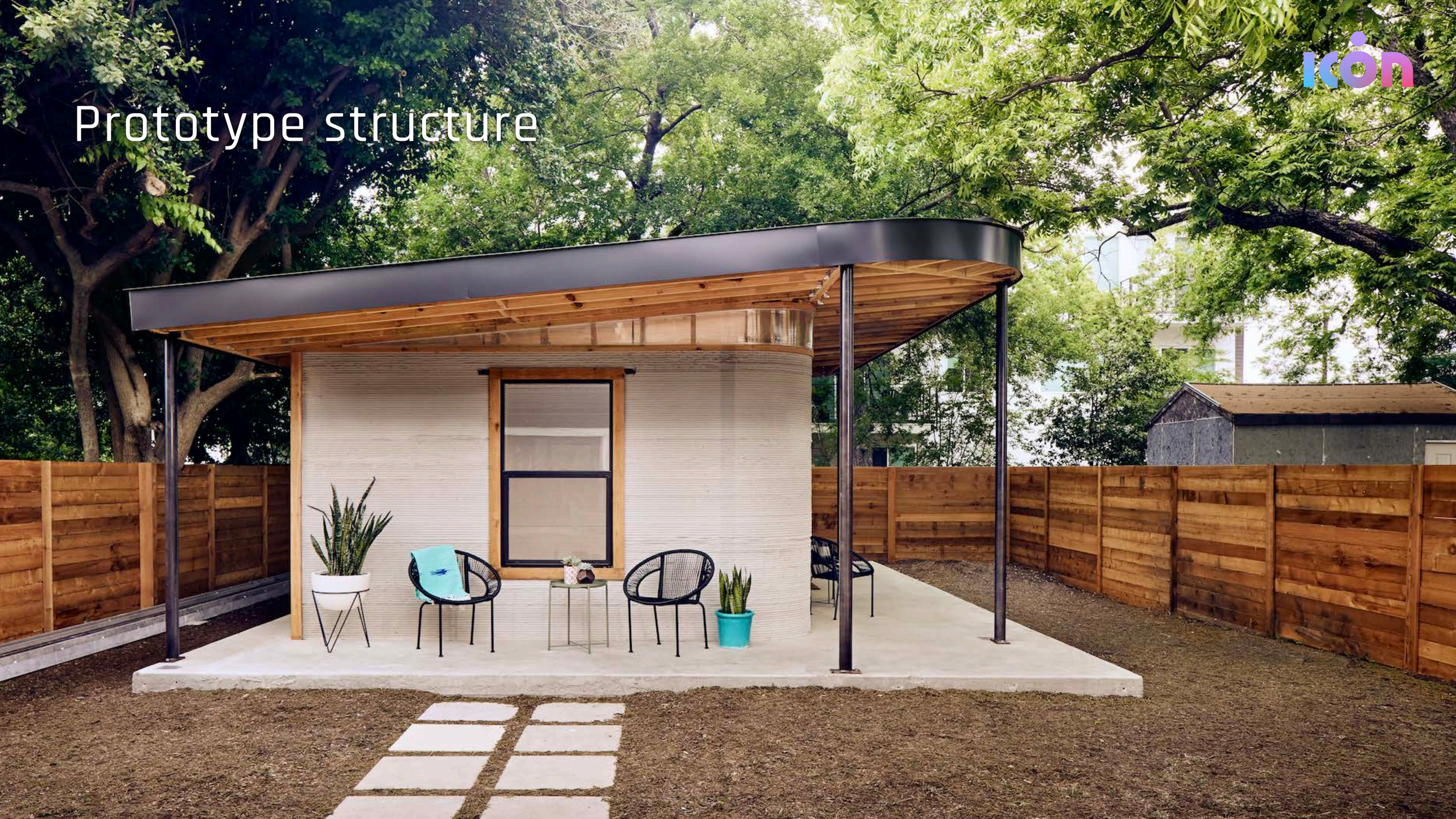
LOW COST



INDUSTRIAL SCALE

ZERO WASTE

Prototype structure



Prototype printer

The Vulcan II is **2x as large and nearly 3x faster** than our prototype printer.

TECHNOLOGY

The state of construction scale additive manufacturing:

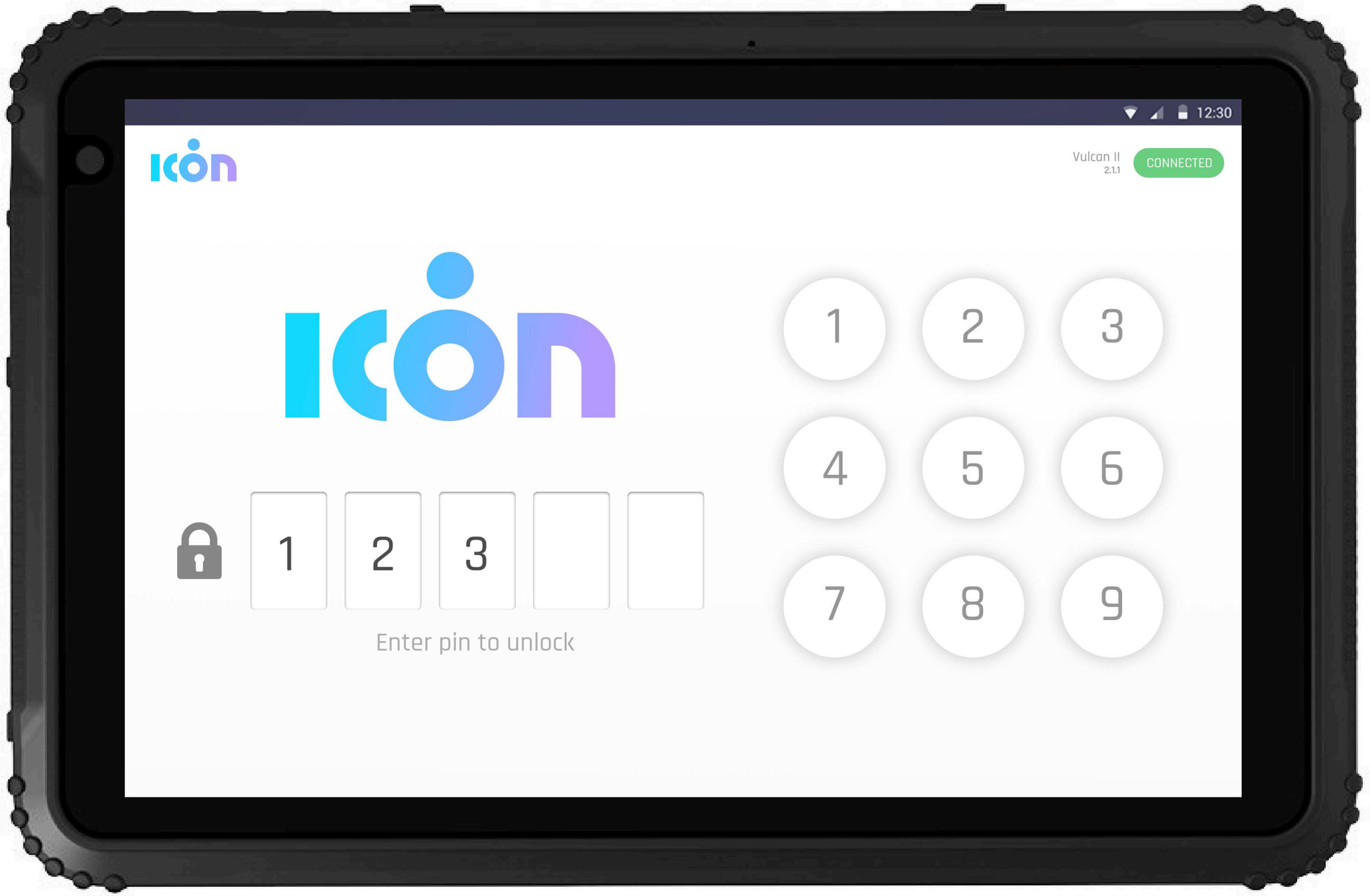
1. **Capable of printing up to 2,500 sq/ft today**

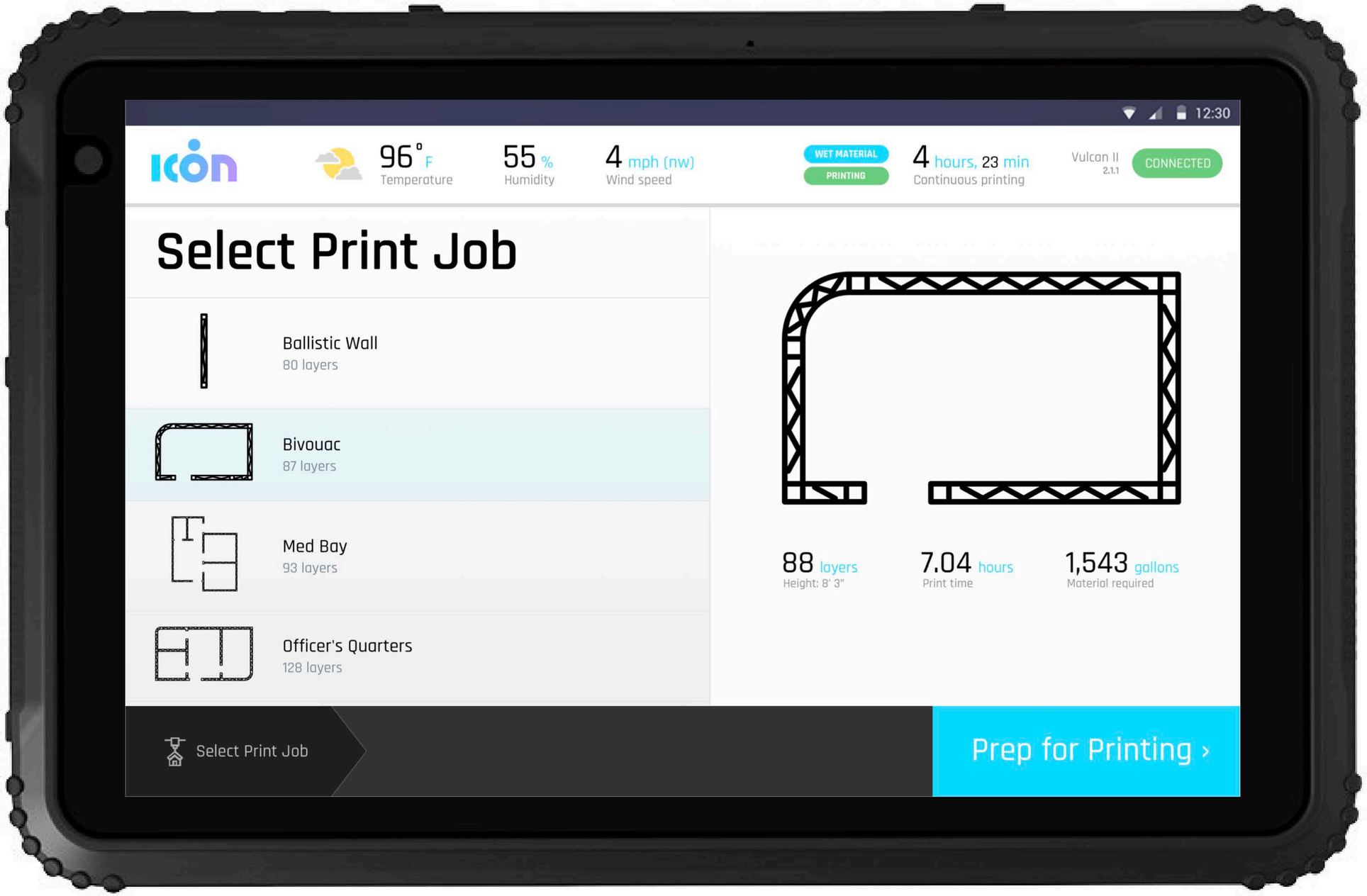
2. **Automating the mixing and pumping of concrete is critical**

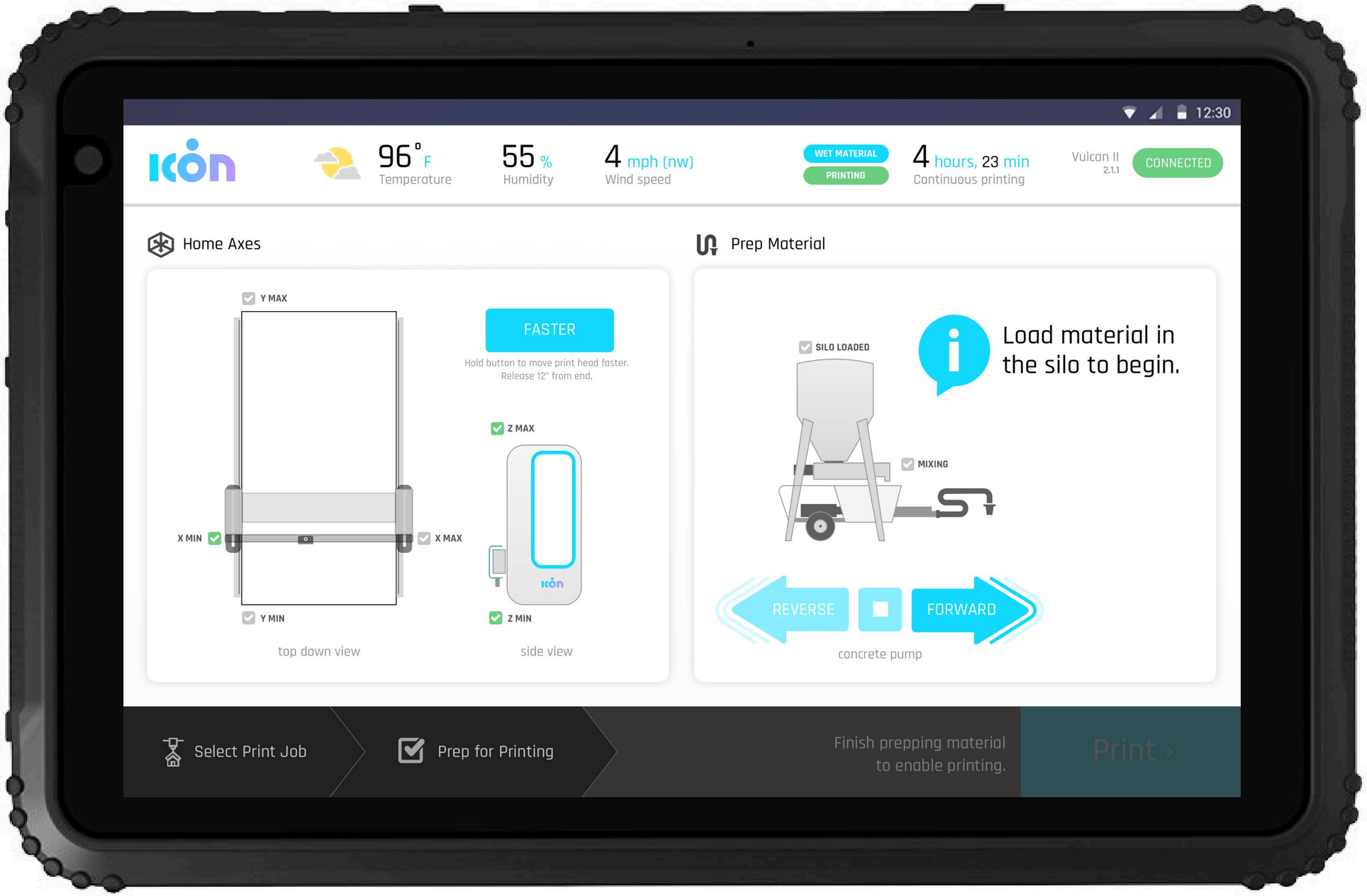
3. **Software is often overlooked**

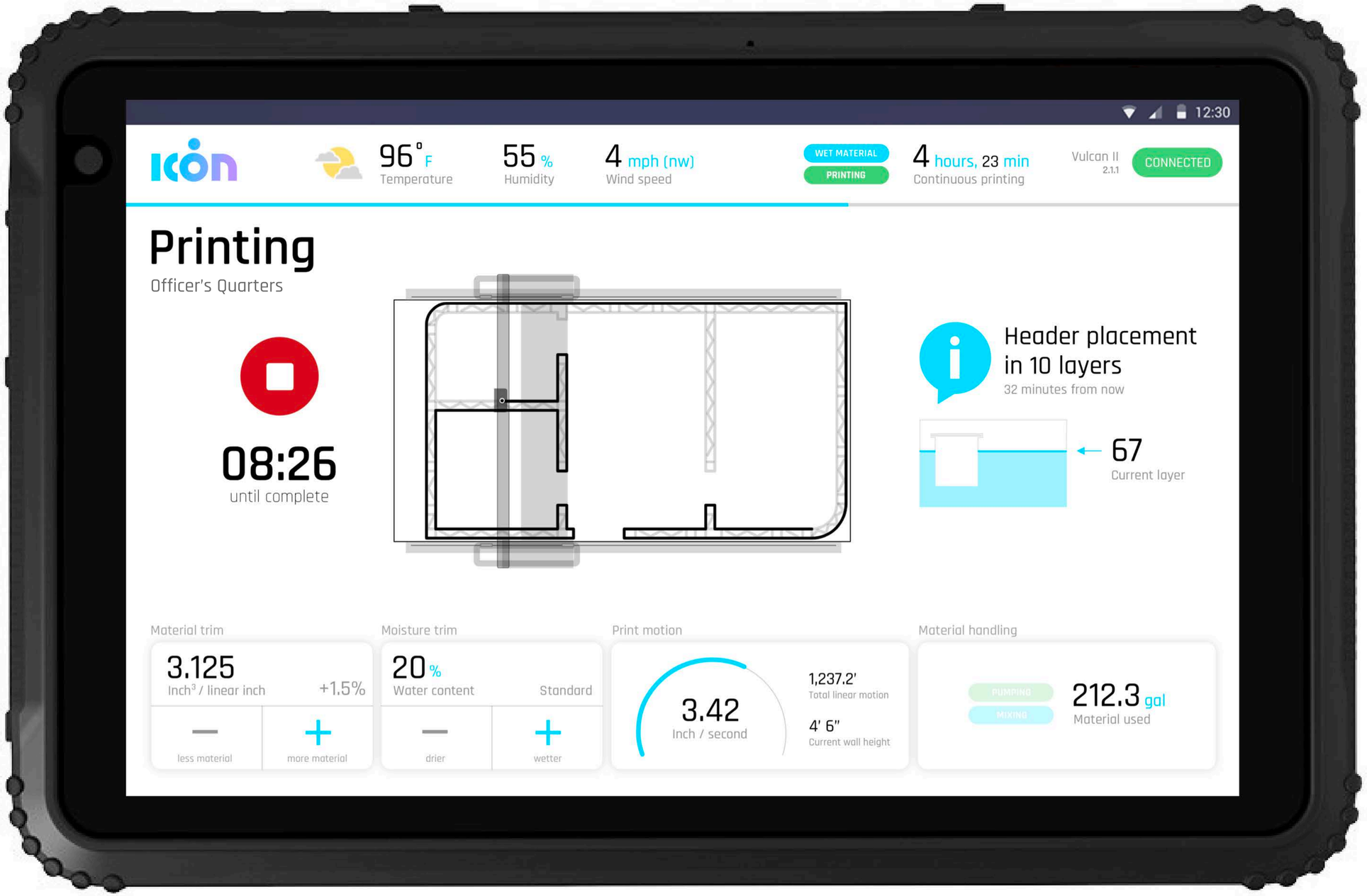
4. **There is 1 permitted 3D printed house in the U.S. It's the early days.**

Software interface


12:30
Vulcan II
2.1.1
CONNECTED
1 2 3
Enter pin to unlock
1 2 3
4 5 6
7 8 9


12:30
96° F
Temperature
55 %
Humidity
4 mph (nw)
Wind speed
WET MATERIAL
PRINTING
4 hours, 23 min
Continuous printing
Vulcan II
2.1.1
CONNECTED
Select Print Job
Ballistic Wall
80 layers
Bivouac
87 layers
Med Bay
93 layers
Officer's Quarters
128 layers
88 layers
Height: 8' 3"
7.04 hours
Print time
1,543 gallons
Material required
Select Print Job
Prep for Printing ›




12:30
96° F
Temperature
55 %
Humidity
4 mph (nw)
Wind speed
WET MATERIAL
PRINTING
4 hours, 23 min
Continuous printing
Vulcan II
2.1.1
CONNECTED
Printing
Officer's Quarters
08:26
until complete
Header placement
in 10 layers
32 minutes from now
67
Current layer
Material trim
3.125
Inch³ / linear inch
+1.5%
less material
more material
Moisture trim
20 %
Water content
Standard
drier
wetter
Print motion
3.42
Inch / second
1,237.2'
Total linear motion
4' 6"
Current wall height
Material handling
PUMPING
MIXING
212.3 gal
Material used


ICON Logo
X 276.56 280.99
Y 28.57 44.72
Z 9.56 23.00

Transportation

C17 CARGO BAY

C17 cargo drop

CONTAINER SHIPPING BY GROUND

Flatbed shipping

Rapid deployment

Survivability

Affordability

Detectability

Concrete Innovation

CONCRETE INNOVATION

1. EMP Resistant

CONCRETE INNOVATION

2. Blast Absorbing

CONCRETE INNOVATION

3. Ultra High Strength

CONCRETE INNOVATION

4. Floating Concrete

CONCRETE INNOVATION

5. Camouflaged Concrete

Contact:

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